

ABSTRACT

Methods for chemical modification of hyaluronic acid, formation of amine or aldehyde functionalized hyaluronic acid, and the cross-linking thereof to form hydrogels 5 are provided. Functionalized hyaluronic acid hydrogels of this invention can be polymerized *in situ*, are biodegradable, and can serve as a tissue adhesive, a tissue separator, a drug delivery system, a matrix for cell cultures, and a temporary scaffold for tissue regeneration.